

# Municipal Setting Designations



MSDs: Another tool for Houston

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Sr. Project Manager

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Brownfields Program Manager

**Municipal Setting Designations (MSDs)**

# Agenda



## ■ City of Houston

- ☐ Why we are here
- ☐ Who the MSD impacts
- ☐ What an MSD is
- ☐ Why support an MSD
- ☐ Steps in the MSD process
- ☐ Questions/Comments

## ■ MSD Applicant

- ☐ Specific information on the site  
18310 Market Street
- ☐ Questions/Comments

# Why Are We Here



- Inform you about an MSD application
  - MSJ Holdings, L.P. (Southwest Shipyard)
  - MSD #2011-036-SWS
- Explain what an MSD is and what it does for the applicant, the local community, and the City
- Receive public comments



# MSD Notice Letters



**CITY OF HOUSTON**  
Public Works and Engineering Department

**Annie D. Parker**  
Mayor

Michael S. Marotta, P.E., D.WRE, BCEE  
Director  
P.O. Box 1962  
Houston, Texas 77251-1962

[www.houstontx.gov](http://www.houstontx.gov)

February 3, 2010

RE: MSD Application #2009-022-PCE  
1111 Lockwood Drive, Houston, TX 77020

Dear Recipient:

Enclosed is a public meeting notice about an upcoming meeting in your area. This is an informational meeting about a property at 1111 Lockwood Drive, Houston, TX 77020 that has contaminated groundwater. We welcome you to attend the public meeting, but it is not mandatory that you come.

The public meeting will be held at:  
3/11/2010  
6:00 PM  
Ripley House  
4410 Navigation, Houston, TX 77011

The following notice will give you additional details about the type of contamination that has been found at the site. Please note: the groundwater contamination at the site is very shallow and is not the groundwater that the City of Houston uses for some of its drinking water. Most of the City's drinking water is now from surface water (Lakes Houston, Conroe, and Livingston).

The purpose of this public meeting is to inform you, the nearby neighbors and well owners, about the Municipal Settings Designation (MSD) program and the application. During the meeting a representative from the city will talk about the MSD program and then the MSD applicant will talk about the site. You may come to the meeting just to listen or you can share a comment. Comments can be given in person at the meeting or you can send them to the State of Texas and/or to the City of Houston at the following addresses.

Mr. Scott Settemeyer  
Remediation Division  
Texas Commission on Environmental Quality  
P.O. Box 13087, MC-225  
Austin, Texas 78711.

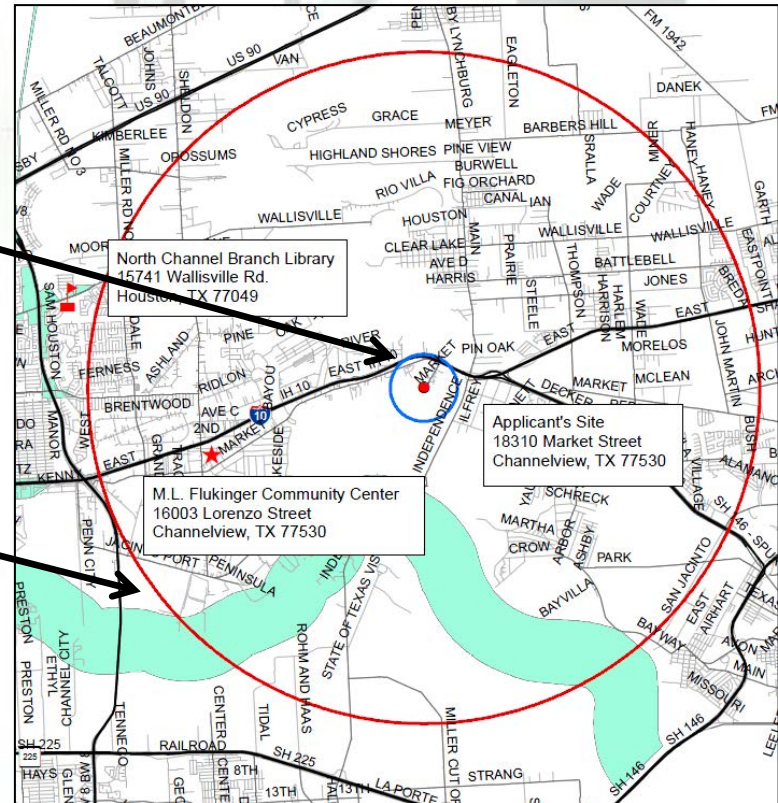
Richard Chapin  
Public Works and Engineering Department  
City of Houston  
611 Walker, 19th FL  
Houston, Texas 77002  
[msd@cityofhouston.net](mailto:msd@cityofhouston.net)  
(713) 837-0928

A MSD is the way the city can legally say that the contaminated groundwater at a property cannot be used for drinking water now or in the future, thereby protecting public health. It may also help a contaminated site develop or redevelop because the state's requirements to clean up contaminated groundwater may be set at levels based on this restriction. The MSD does not excuse the applicant from clean up activities such as removing the surface soil or reducing other risks to the public.

Council Members: Brenda Spang, Anna Johnson, Anne Collier, Wanda Adams, Mike Sullivan, Al Young, Oliver Pennington, Edward Gonzalez, James C. Rodriguez, Stephen C. Canale, Sue Lovell, Melissa Tortorella, C.D. "Shel" Shelton, Amanda J. Jones, Christopher Thomas, Green

Property Owners  
First-Class Mail  
½-Mile Radius  
City Requirement

Water Well Owners  
Certified Mail  
5-Mile Radius  
State Requirement



# Who the MSD Impacts



- Unless you are the applicant:
  - An MSD **does not affect** your property
  - An MSD **does not affect** your water well
  - There are **no requirements** on you
- Drinking water supplied by the City is not affected

# What an MSD is



- Voluntary deed restriction to prevent the use of contaminated groundwater
  - State program created in 2003
    - Texas Commission on Environment Quality (TCEQ)
  - City process created in November 2007
    - Public Works & Engineering
- TCEQ cannot approve an MSD without the City Council's support

# What an MSD is



- Another tool to address groundwater contamination



- Houston has shallow groundwater contamination scattered across the city
  - Program considers 200 feet below the surface



# City Water Supply

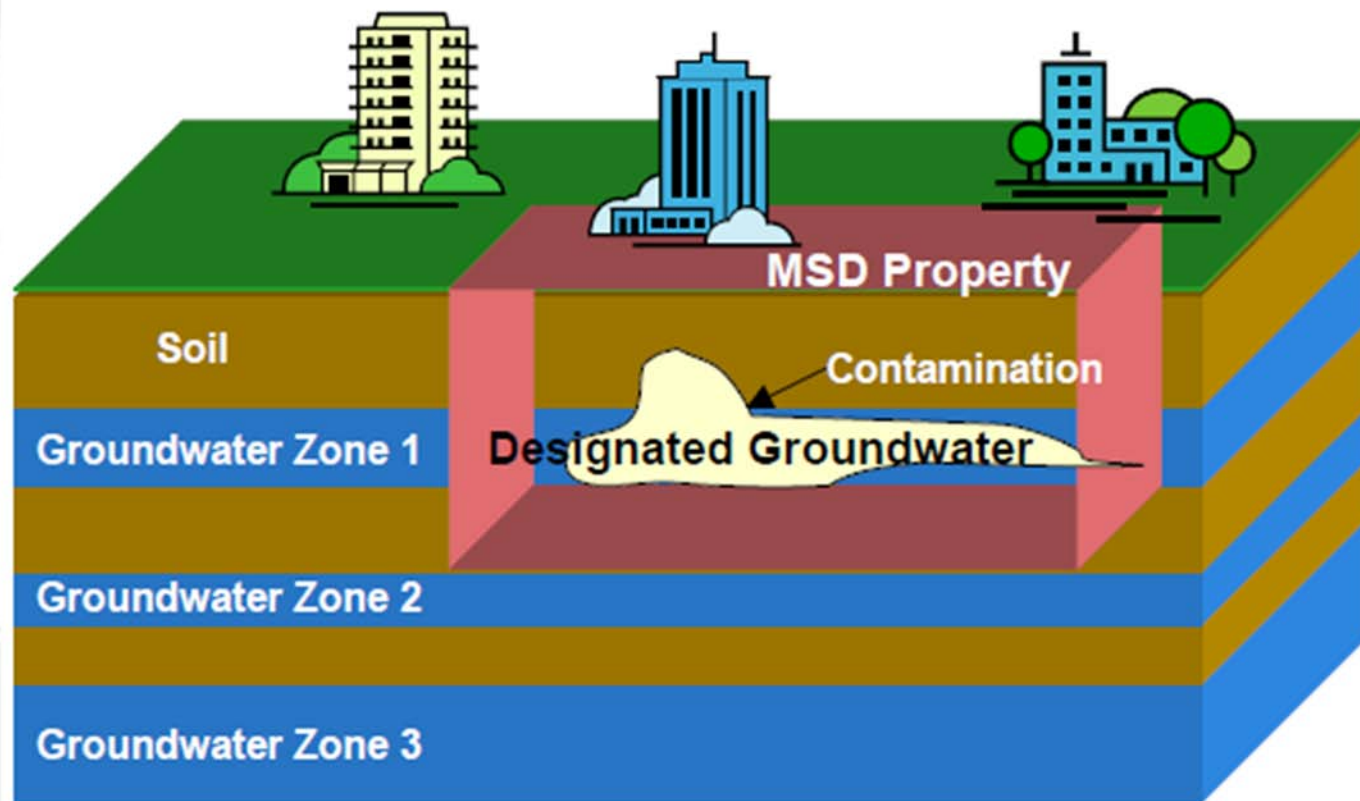


- Houston's drinking water comes from either deep aquifers (20%) or surface water (80%)
  - Surface water supply
    - Lake Houston
    - Lake Conroe
    - Lake Livingston
    - Trinity River





# Shallow Contamination



Impacted groundwater is typically between 20 and 60 feet below the surface.

Drinking Water Supply Wells typically get water from 600 feet or deeper below the surface.

# Problems of Traditional Remediation Methods



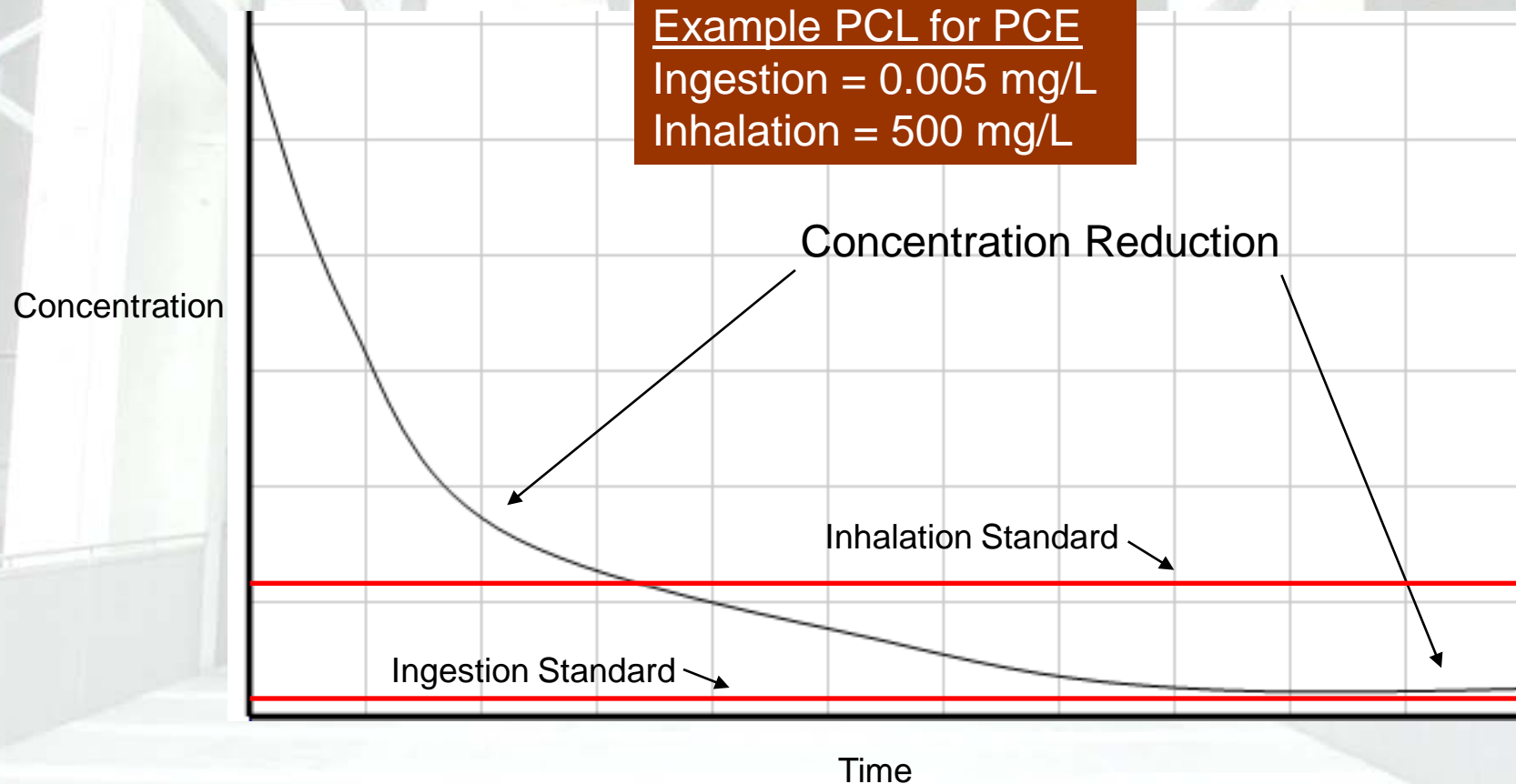
- Groundwater must be cleaned to drinking water standards even if:
  - There is no need or desire to use it, or
  - Water bearing zone is too silty, too salty, or low
  - producing
- Groundwater remediation to drinking water standards is inefficient, costly, and can take decades



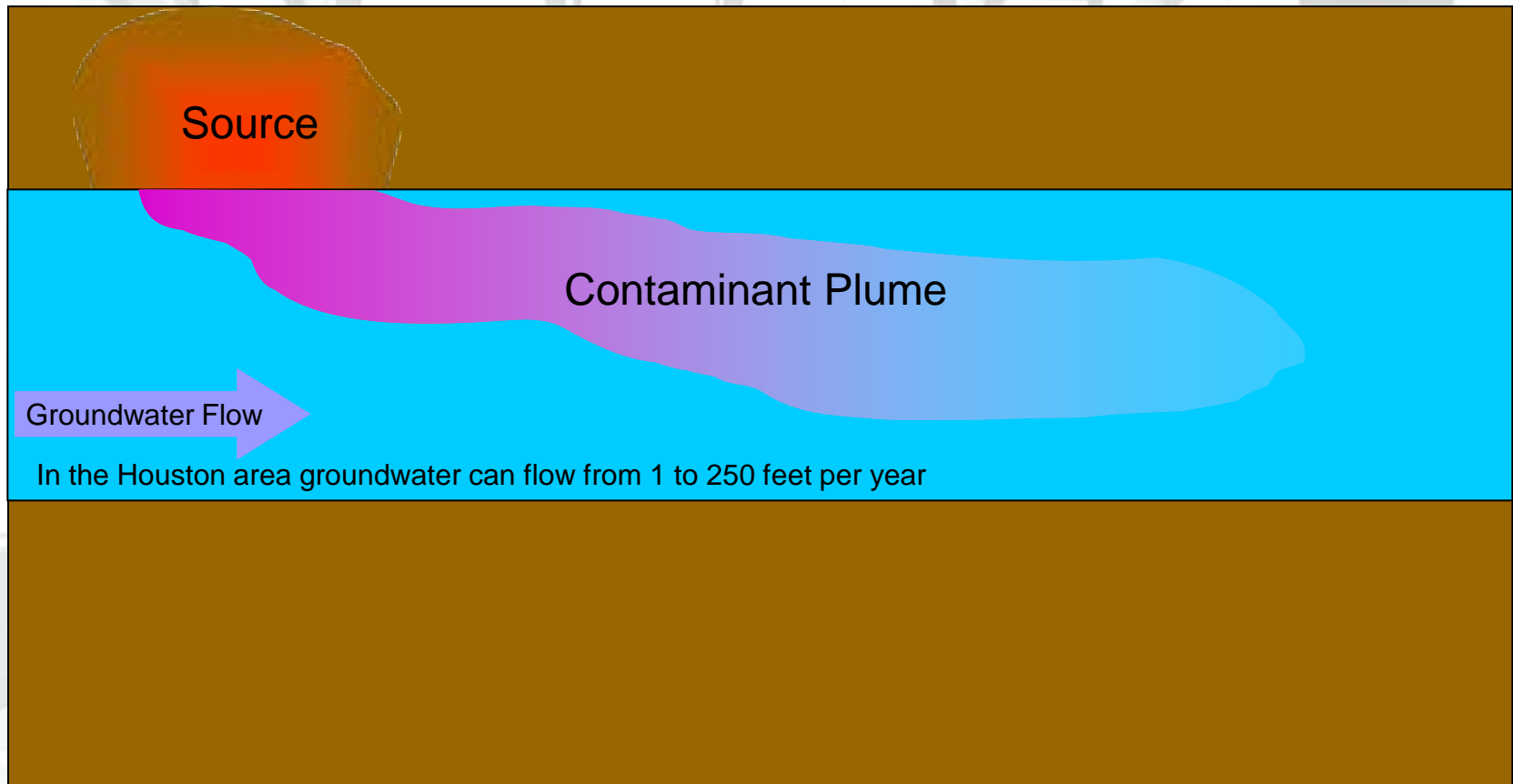
# Groundwater Remediation



Example PCL for PCE  
Ingestion = 0.005 mg/L  
Inhalation = 500 mg/L

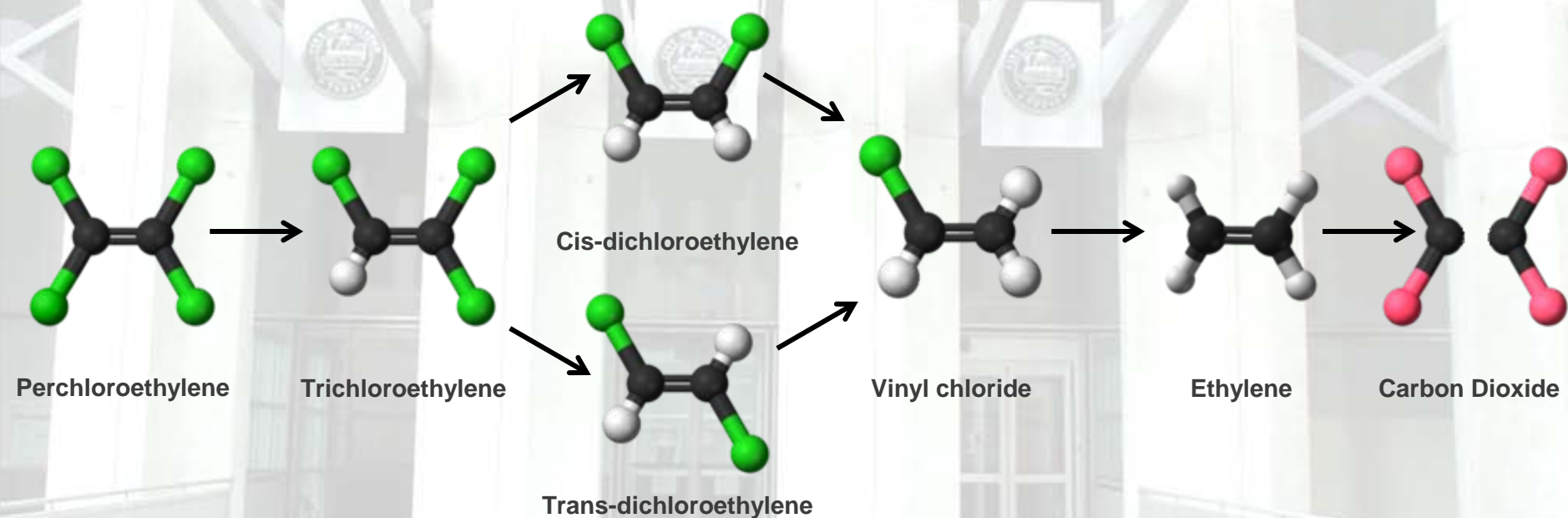


# Contaminant Flow





# Natural Attenuation



# Applicant's Responsibility



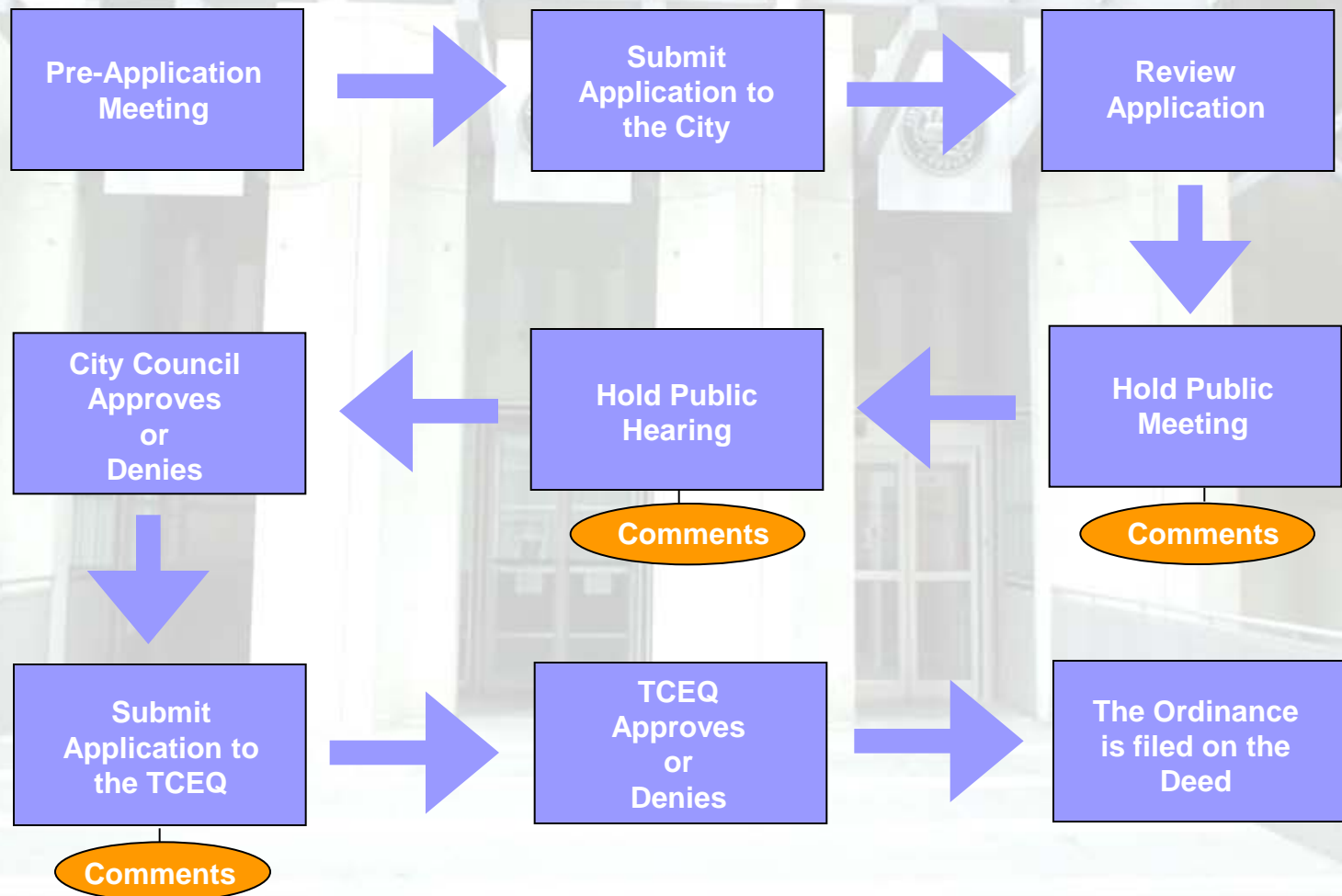
- An MSD does **NOT** excuse the applicant from reducing other risks to the public
- Owner must address other exposure pathways
  - ☐ Non-Ingestion
  - ☐ Soil
  - ☐ Vapors
  - ☐ Runoff and other flows

# City's Requirements of the Applicant



- Enrollment in a State or Federal cleanup program
- Thorough investigation
  - Data must show that the groundwater plume is stable or decreasing.
- A **third party** Professional Engineer (P.E.) or Professional Geologist (P.G.) must be willing to certify that the plume is stable or decreasing.

# Steps in the Process



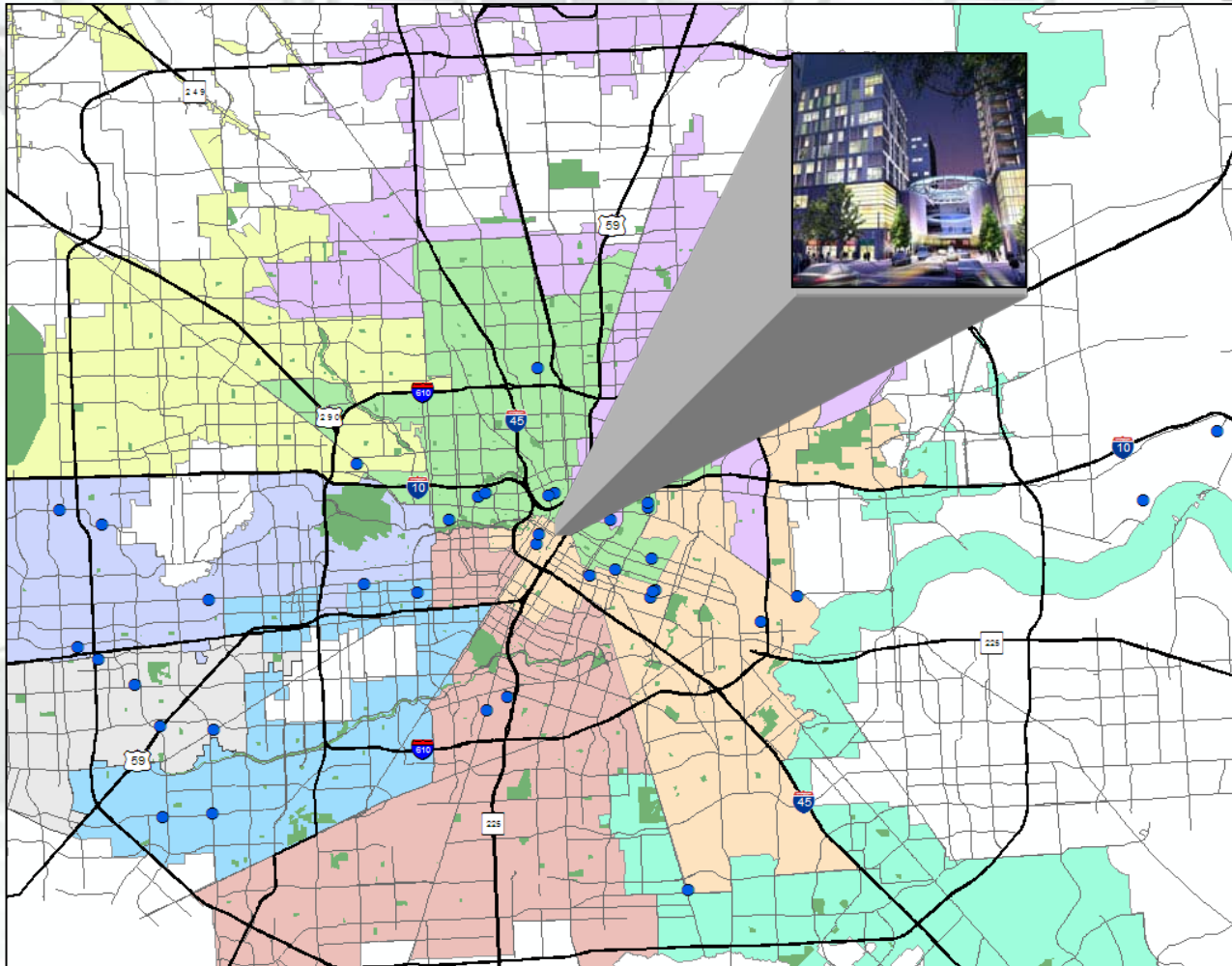


# Why Support An MSD?



- Protects the public from consumption of shallow contaminated groundwater
- Encourages clean-up of contaminated sites through participation in a State or Federal program
- Promotes redevelopment of under-utilized properties

# MSD Sites in Houston



**Municipal Setting Designations (MSDs)**

# MSD Application



- North Channel Branch Library reference desk
- 15741 Wallisville Rd.  
Houston, TX 77049

# The MSD Website



**[www.houstonmsd.org](http://www.houstonmsd.org)**

The screenshot shows the City of Houston website with the 'Municipal Settings Designation' page. The page includes a sidebar with 'Departmental Links' and a main content area with sections for 'History', 'General Information', 'Forms and Information', and 'FAQ'. A black arrow points from the 'MSD in Review' link in the sidebar to the 'MSD in Review' link in the list on the right.

City of Houston  
Home | What's New | Government | Residents | Businesses | Departments | Visitors | En Español

Home » Planning » Municipal Settings Designation

Public Works and Engineering

Departmental Links

- PWE Home
- Engineering and Construction
- Planning and Development
- Public Utilities
- Resource Management
- Right of Way and Fleet Maintenance
- Traffic and Transportation
- Director's Office
- MSD Programs
  - Green Building
  - Houston Bikeways
  - Corral the Grass
  - Water Education

Municipal Settings Designation

Carol Ellinger Haddock, Assistant Director, PE

**History:**

In 1983, the Texas Legislature authorized the creation of MSDs, which would designate an area in which the use of contaminated groundwater is prohibited from use as potable water. The law is administered by TCEQ. The intent of the legislation is to encourage redevelopment of vacant or abandoned properties while protecting the public health.

On August 22, 2007, City Council approved an Ordinance amending Chapter 47 of the Code of Ordinances by adding Article 431 relating to groundwater, which will provide a process for supporting or not supporting a Municipal Setting Designation (MSD) application to the State. The City's program becomes effective November 1, 2007.

**General Information:**

- The sites that could apply for a MSD are already contaminated.
- The process requires that an applicant must participate in one of the cleanup programs administered by Texas Commission on Environmental Quality (TCEQ) or EPA.
- A MSD only eliminates the requirement that property owners address the risk of consuming groundwater. Assessment would still be required for other means of exposure such as:
  - Inhalation of vapors
  - Contact with contamination during construction projects
  - Ecological impacts, such as, seepage into nearby waterways
  - Establishing a MSD does not remove any liability from the property owner, nor does it shift any liability to the City.
- MSDs will not be approved within a total head protection area and no MSD may be approved unless the site is already served by City water or is capable of being served by City water, at the applicant's expense.
- MSDs prohibit the use of groundwater as potable water; In the City's ordinance, potable water is defined as water that is used for irrigation, production of food or drink products intended for human consumption, drinking, showering, bathing or cooking purposes.

**Forms and Information**

- Application Form
- Certified Mail Spreadsheet Template
- Regular Mail Spreadsheet Template
- City Ordinance

**FAQ:**

- Frequently Asked Questions for Application Process
- Frequently Asked Questions for MSD's (English)
- Frequently Asked Questions for MSD's (Spanish)

**Other Websites of Interest:**

TCEQ - Application Form

TCEQ - A Guide for Cities

You can request an electronic copy of the full application by e-mail to: [msd@houstonmsd.org](mailto:msd@houstonmsd.org)

For more information concerning the application or process of an MSD in Houston, call:

Carol Ellinger Haddock  
Senior Assistant Director, PE  
PW&E/Planning & Development Services Division  
PH 713.837.0928  
FX 713.837.0658

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Site last revised at 1/20/10 to 10/09 screen size.

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**Carol Ellinger Haddock**  
**Senior Assistant Director, PE**  
PW&E/Planning & Development Services Division  
PH 713.837.0928  
FX 713.837.0658

- [MSD Calendar](#)
- [MSD Completed](#)
- [MSD in Review](#)

## Municipal Setting Designations (MSDs)



# The MSD Website



## MSD in Review

Carol Ellinger Haddock , Assistant Director, P.E.

### MSD in Review

Differential Development – 1994, Ltd. #2008-012-DD (Lantern Lane Shopping Center Site )	
Executive Summary	
Full Application	
Hoerbiger Corp. of America Inc. and Morgan Advanced Materials and Tech. Inc. # 2009-016-Milby (Milby Street Site)	
Executive Summary	
Full Application	
Estate of Isadore and Esther Robinson # 2009-020-GMI (Former Gulf Metals Industries Landfill Site)	
Executive Summary	
Full Application	
Public Meeting Notice	
Public Meeting Presentation	
Silver Bishop Holdings, LP #2010-025-NOR (Navigation-Norwood Site)	
Executive Summary	
Full Application	
Public Meeting Notice	
Public Meeting Presentation	

## MSD Calendar

Carol Ellinger Haddock , Assistant Director, P.E.

### Municipal Settings Designations Calendar

Information on the latest meetings, conferences, and events.

Date	Time	Event
07/14/2010	9:00 AM	Public Hearing: FPA/PinPoint Mykawa, LLC. (MSD # 2009-020-GMI) City Hall Council Chambers, 2nd Floor, 901 Bagby, Houston, TX 77002
07/20/2010	6:00 PM	Public Meeting: Schlumberger Technology Corporation (MSD #2010-027-STC) Judson Robinson Jr. Community Center, 2020 Hermann Dr., Houston, TX 77004
08/03/2010	6:00 PM	Public Meeting: Differential Development - 1994, Ltd. (MSD #2008-012-DD) Tracey Gee Community Center, 3599 Westchase Dr., Houston, TX 77042
08/04/2010	9:00 AM	Public Hearing: BAE Systems Resolutions Corporation, Inc. (MSD #2010-026-FSS) City Hall Council Chambers, 2nd Floor, 901 Bagby, Houston, TX 77002
08/24/2010	6:00 PM	Public Meeting: Board of Regents of the University of Texas System (MSD #2010-028-ACD) Judson Robinson Jr. Community Center, 2020 Hermann Dr., Houston, TX 77004

## Municipal Setting Designations (MSDs)

# Public Hearing



- Date: Thursday, June 16, 2011
- Time: 10:00 am
- Place: City Council Chamber (Committee Meeting)  
Development and Regulatory Affairs
- Address: 901 Bagby, Second Floor  
Houston, Texas 77002

Any person wishing to speak on this issue must arrive at least 15 min early and sign the speakers list located on the front desk.

# Contact Information



**Richard Chapin**  
Senior Project Manager

**&**

**Jedediah Greenfield**  
Brownfields Program Manager

**Public Works & Engineering  
City of Houston,  
611 Walker, 19<sup>th</sup> Floor  
Houston, Texas 77002**



**[msd@houstontx.gov](mailto:msd@houstontx.gov)**  
**(832) 395-2699**

**Municipal Setting Designations (MSDs)**

# Contact Information



Scott Settemeyer  
Remediation Division

Texas Commission on Environmental Quality

P.O. Box 13087, MC-225

Austin, Texas 78711

[ssetteme@tceq.state.tx.us](mailto:ssetteme@tceq.state.tx.us)





# **MSJ Holdings, LP Municipal Setting Designation Public Meeting**

W&M Environmental Group  
May 16, 2010



# W&M Environmental Group

- **Andy Adams, CAPM**
  - BS Environmental Studies, University of Kansas
  - MS Environmental Chemistry, University of Minnesota
  - On-Site Project Manager
- **Gene Murray, PG**
  - BS Geology, University of South Dakota
  - MS Geology, University of Nebraska
  - MS Management, University of Texas-Dallas
  - 30 years of experience

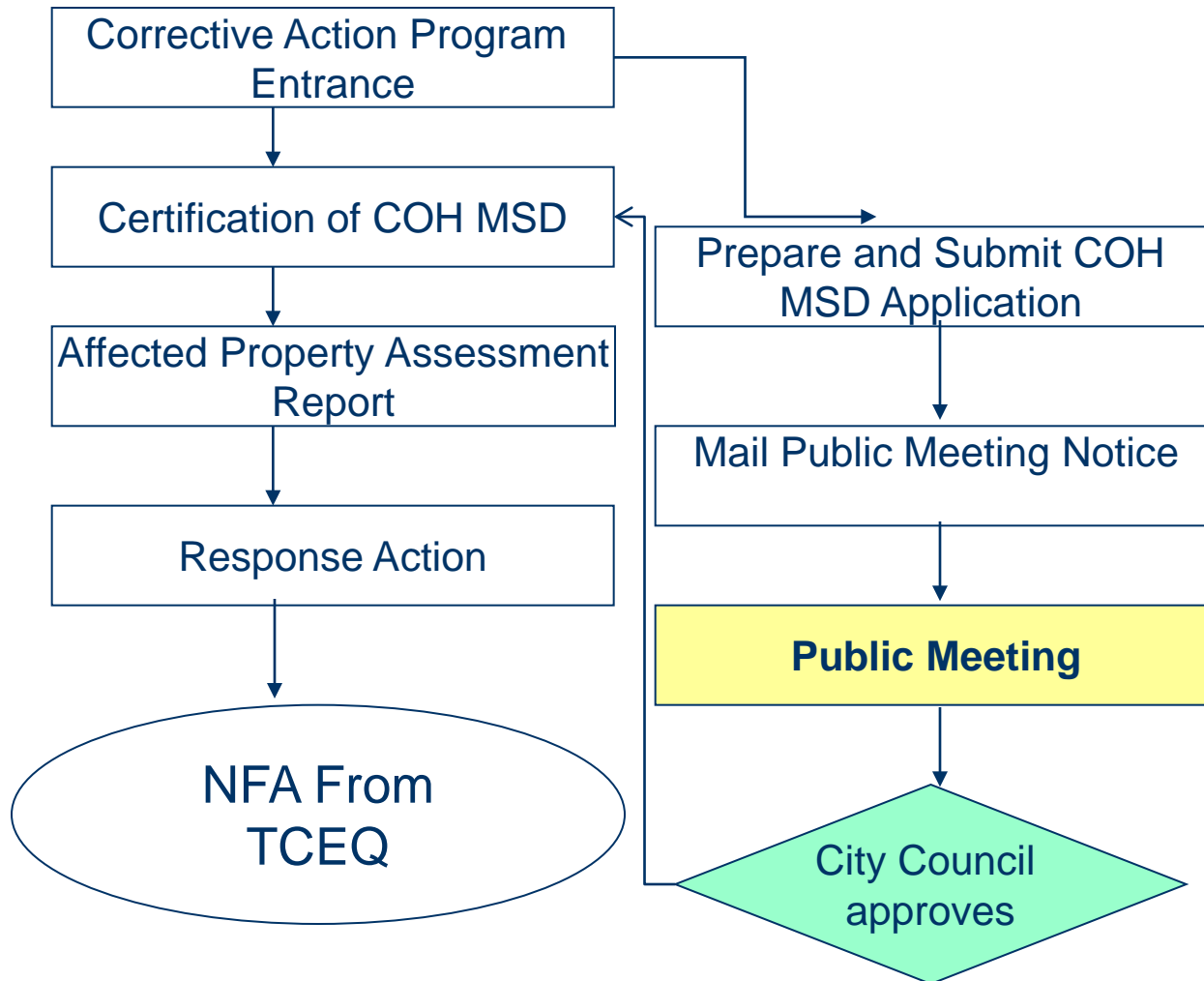


# Public Information

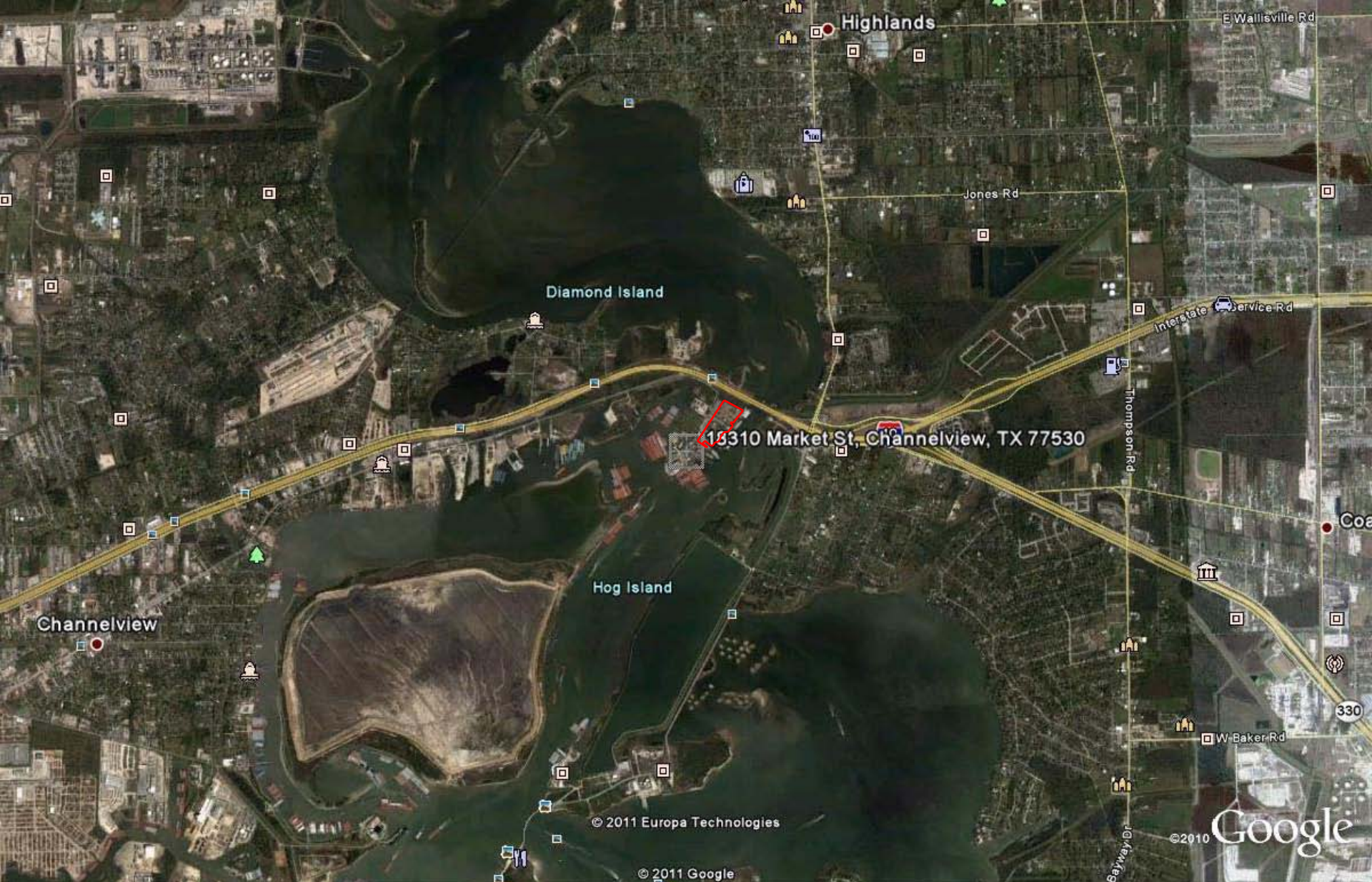
- This Meeting is to Notify the Public
  - MSD = Municipal Setting Designation
  - An Ordinance for MSD AREA of the Site only
  - Protect the Public Health and Environment
  - Prevent Groundwater in MSD as Potable Source
  - Allows Site to Pursue Additional Expansion
  - Not Associated with San Jacinto Pits Superfund



# Texas Risk Reduction Program Process



No Further Action Letter From TCEQ – Certifies Protection of Human Health and the Environment.











# Site Basic Characteristics

- Heavy Industrial
- Operations Started in 1952
- Property Size – 23.5 acres
- MSD Area – 6.4067 acres
- Surface Impoundment used from 1957 until 1979
- Groundwater Flow – East/Southeast
- Groundwater Utilized by Site – Chicot Aquifer
  - Water Wells **Outside** MSD Area





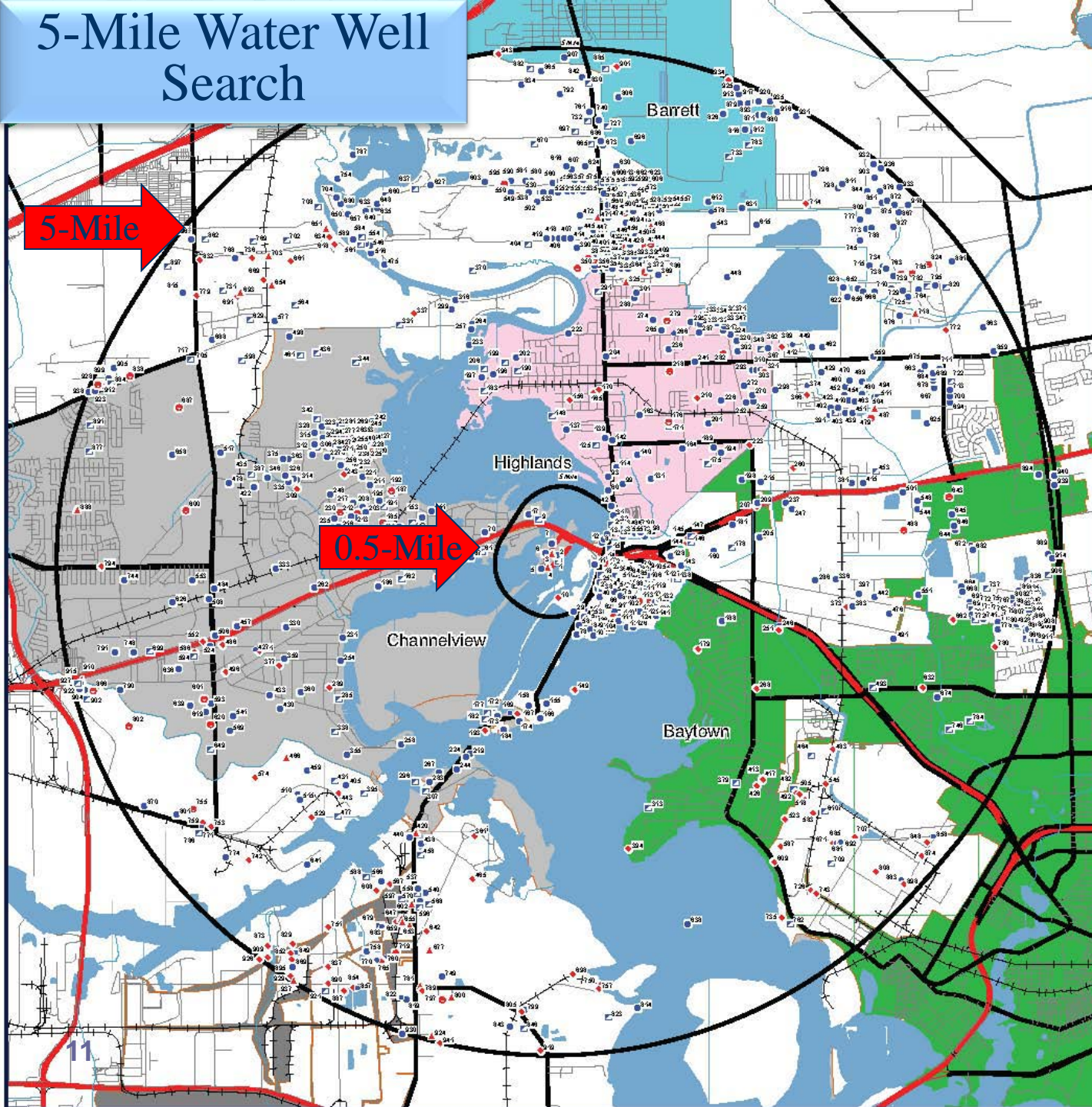


# Where Did the Impact Come From

- MSJ Holdings is Landowner
- Southwest Shipyards is Operator
  - Barge Repair
    - Grinding, Sanding, Descaling, etc.
  - Barge Cleaning
    - Wash Water Impacted with Barge Contents
- Groundwater Impacts
  - VOCs – Solvents, Base Level Chemicals - Cleaning
  - SVOCs – Chemical Intermediates - Repair



# 5-Mile Water Well Search



- 3 Water Wells on the Site
- 49 Wells within 0.5-mile
- 1,424 Wells within 5-miles
- 804 Separate Entities
- **No Affected or Potentially Affected Wells**

May 16, 2011

# Regional Geology

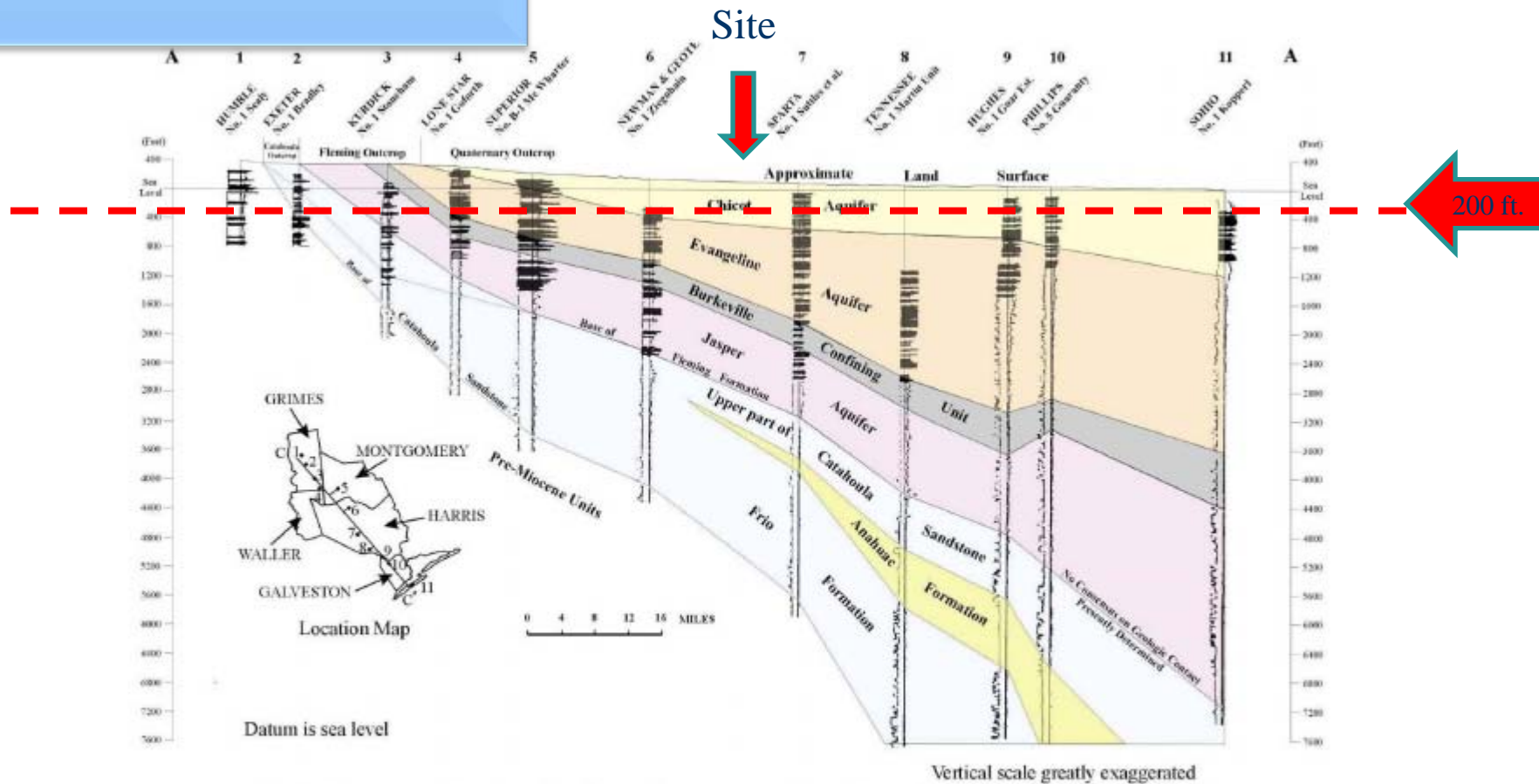
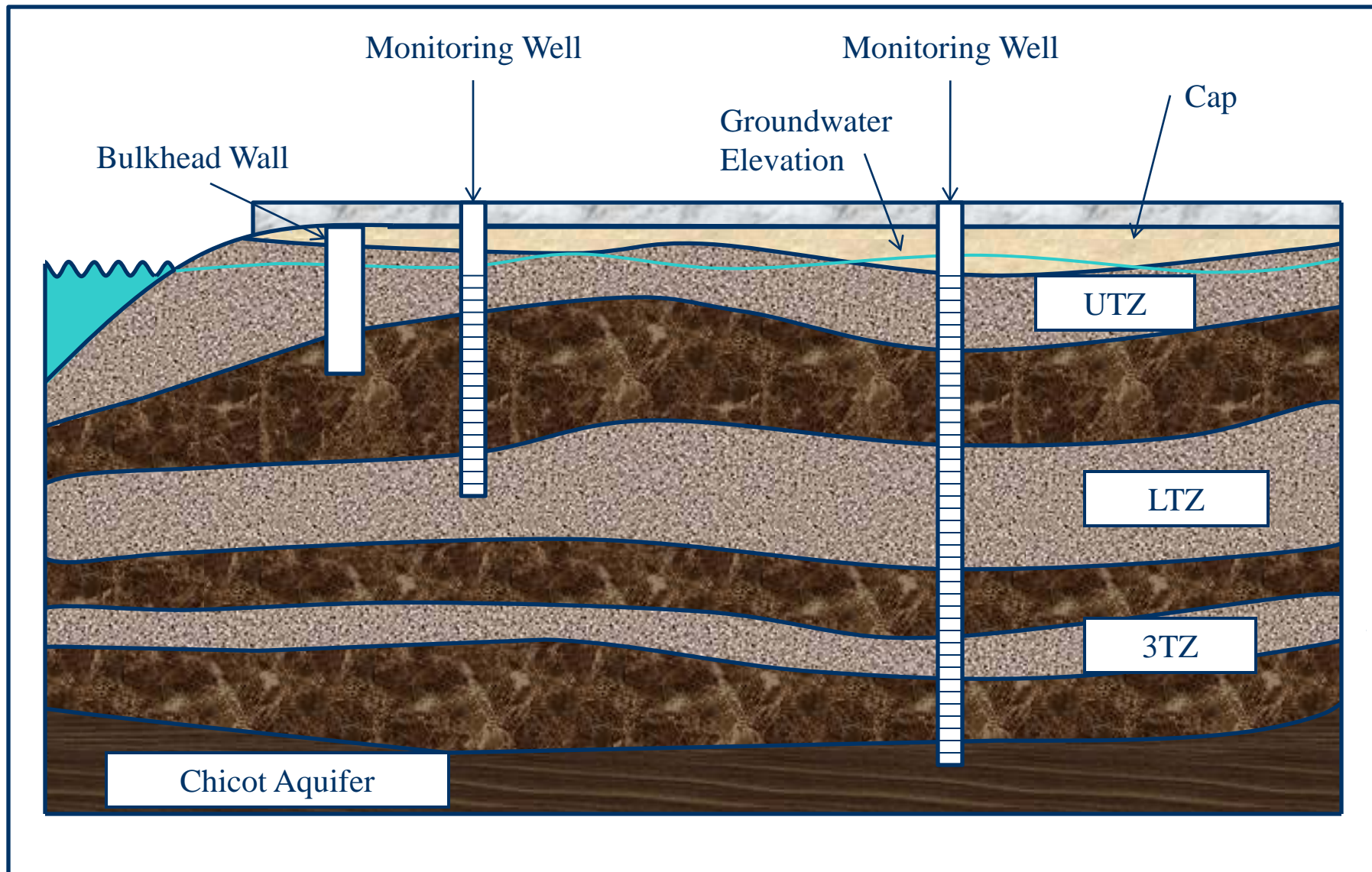


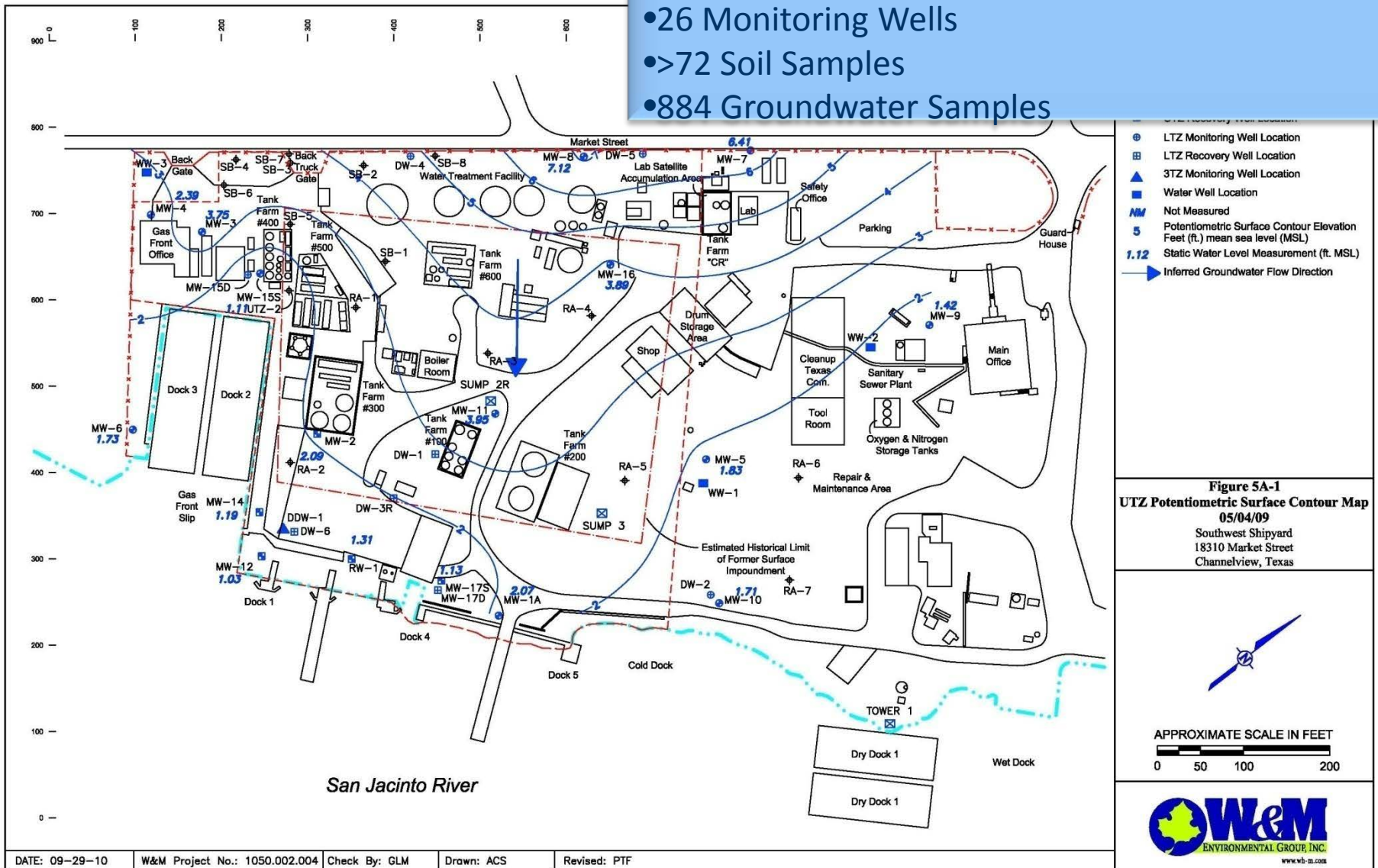
Figure 2-14. Cross-section showing thicknesses of the aquifers down-dip in the northern part of the Gulf Coast (after Baker, 1979; Kasmarek, unpublished data).



# San Jacinto Bulkhead



- 33 Soil Borings
- 26 Monitoring Wells
- >72 Soil Samples
- 884 Groundwater Samples



# Delineation & Remediation Efforts

- 1979 – Surface Impoundment Remediated
  - Soil Removed, Sump Installed, Deed Recorded, Cap
- 1989 – Two Additional Sumps Installed
- 1992 – Entered Corrective Action - TWC
- 1995 – Sediment and Surface Water Investigated
- 1996 – Recovery System Designed
  - 2 sumps, 9 recovery wells
  - WWTP



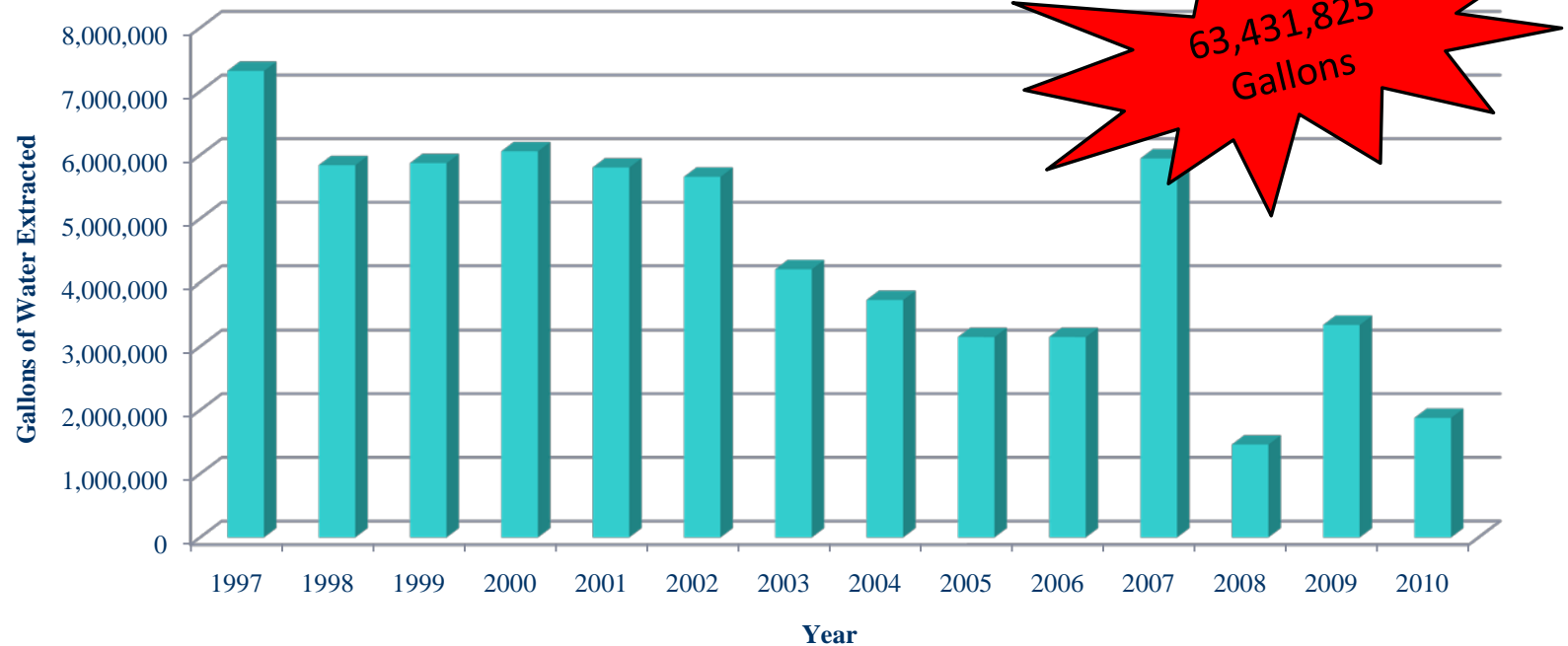


# Delineation & Remediation Efforts

- 1997 – Surface Impoundment Concrete Cap
- 2007 – Recovery System Redesign
  - 5 Recovery Wells
  - Asymptotic
- 30 Soil Borings (72 Samples)
- 25 Monitoring Wells (884 Samples)
  - More than 17 Years of Monitoring Data
- Corrective Action Program – SWR No. 31208

# Groundwater Extraction

Groundwater Extraction By Year

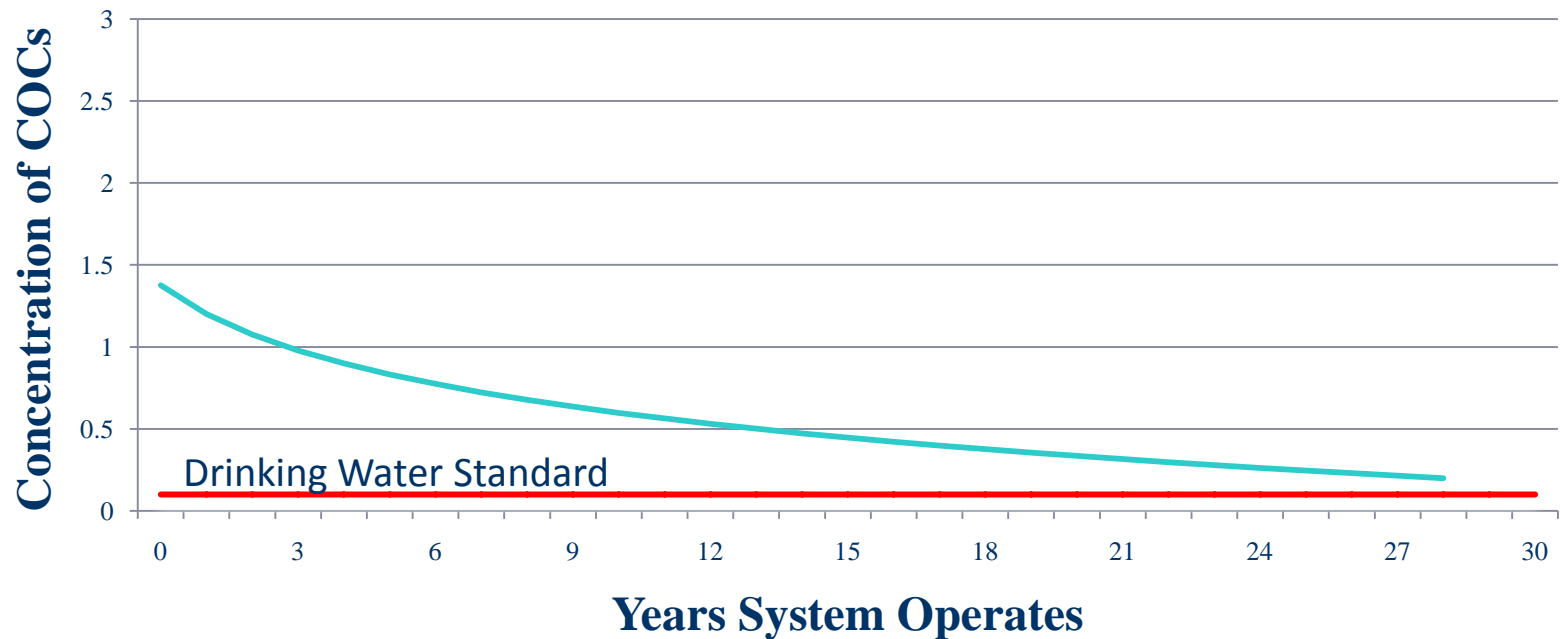


63,431,825 Gallons of Water  
Treated

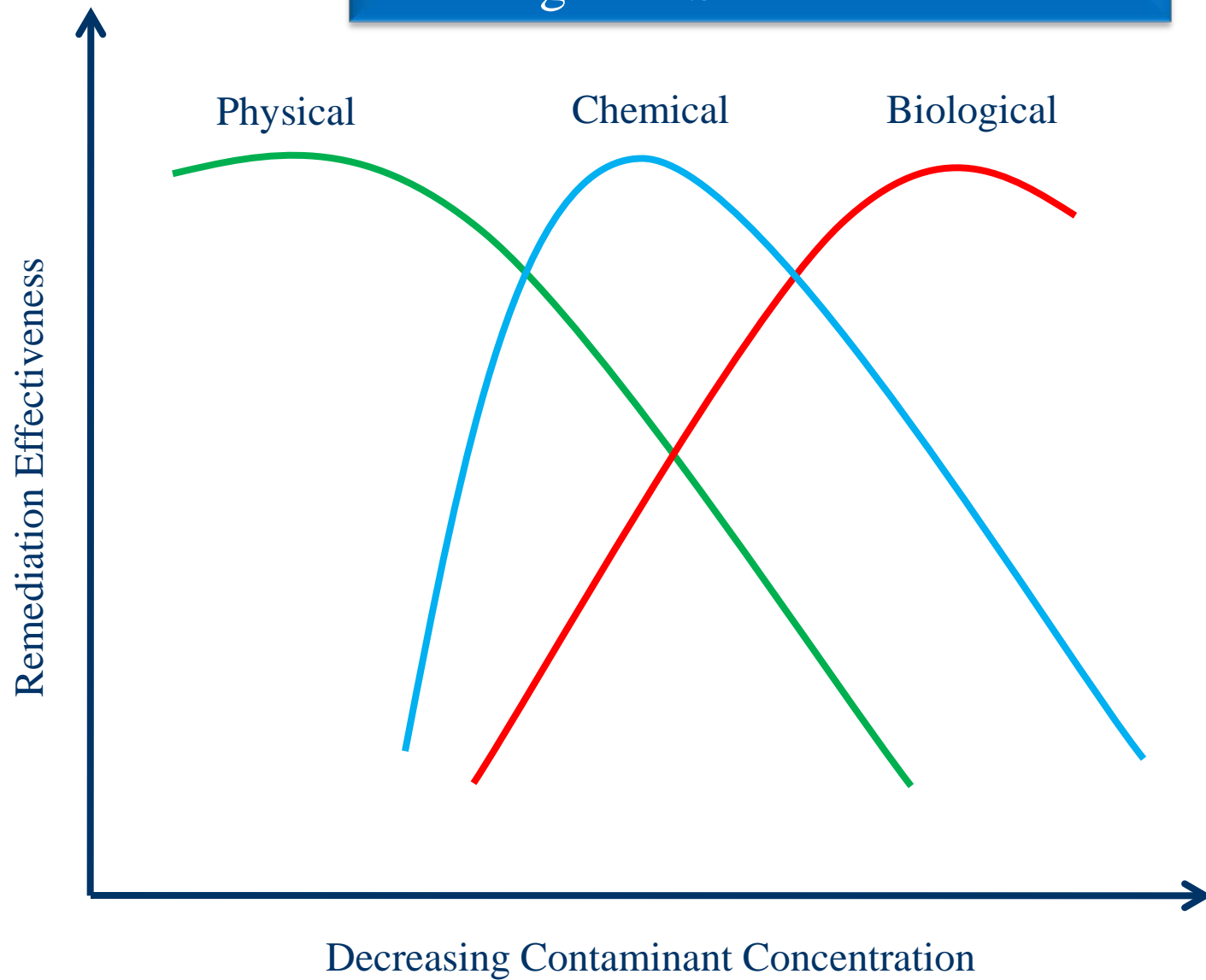
May 16, 2011

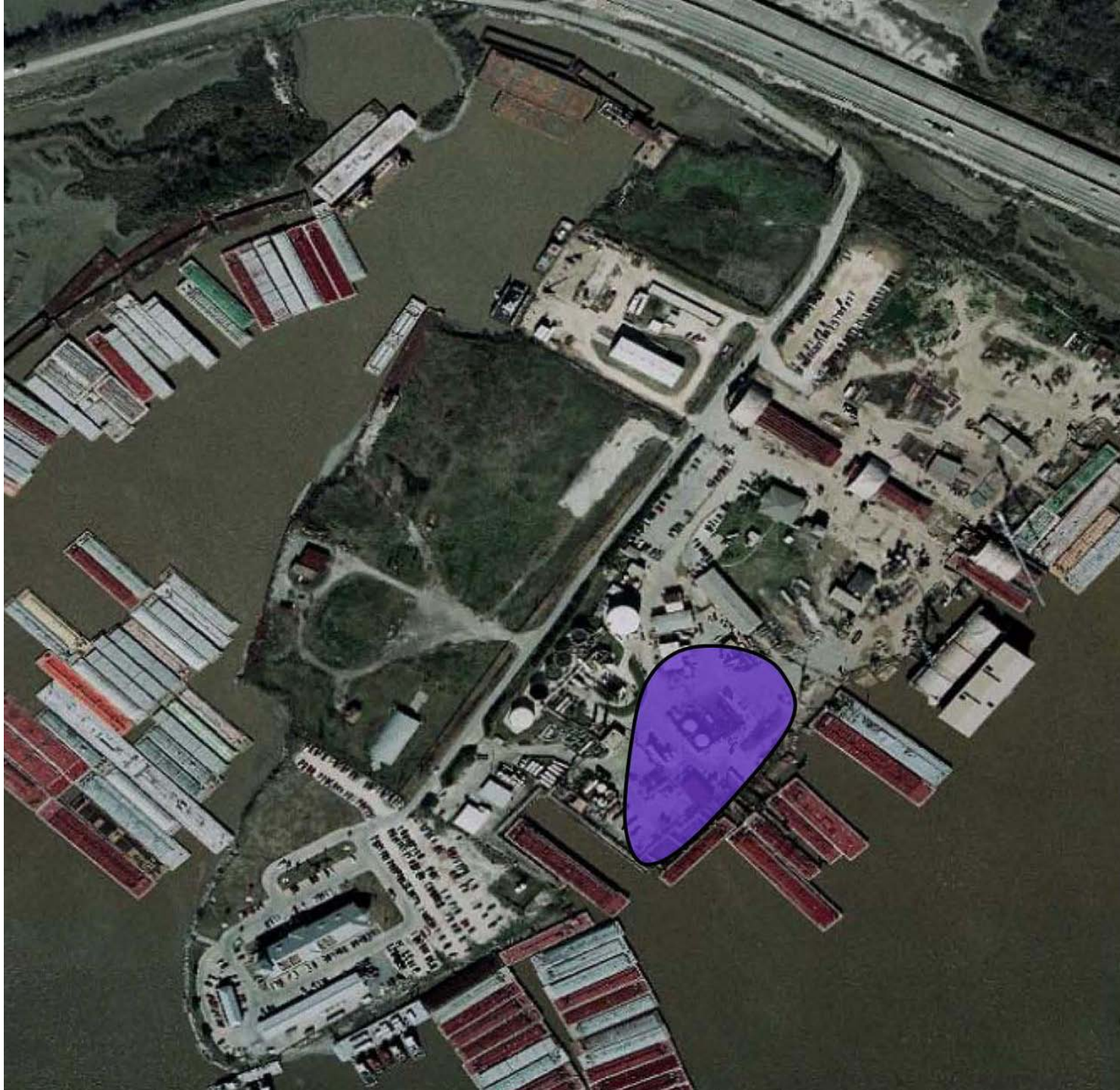
# Remediation Limitations

## Pump and Treat Lifecycle

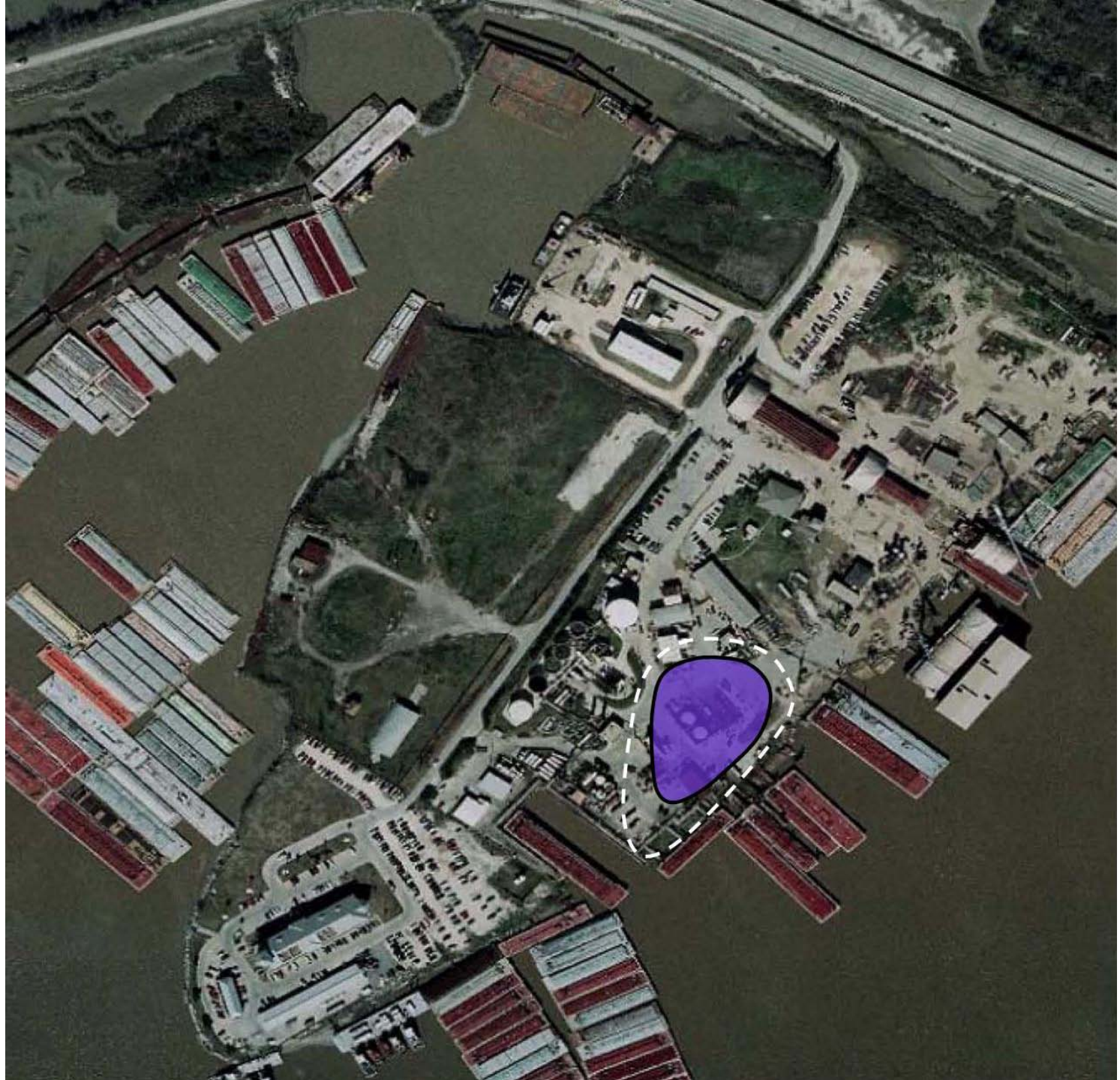


# Integrated Site Remediation

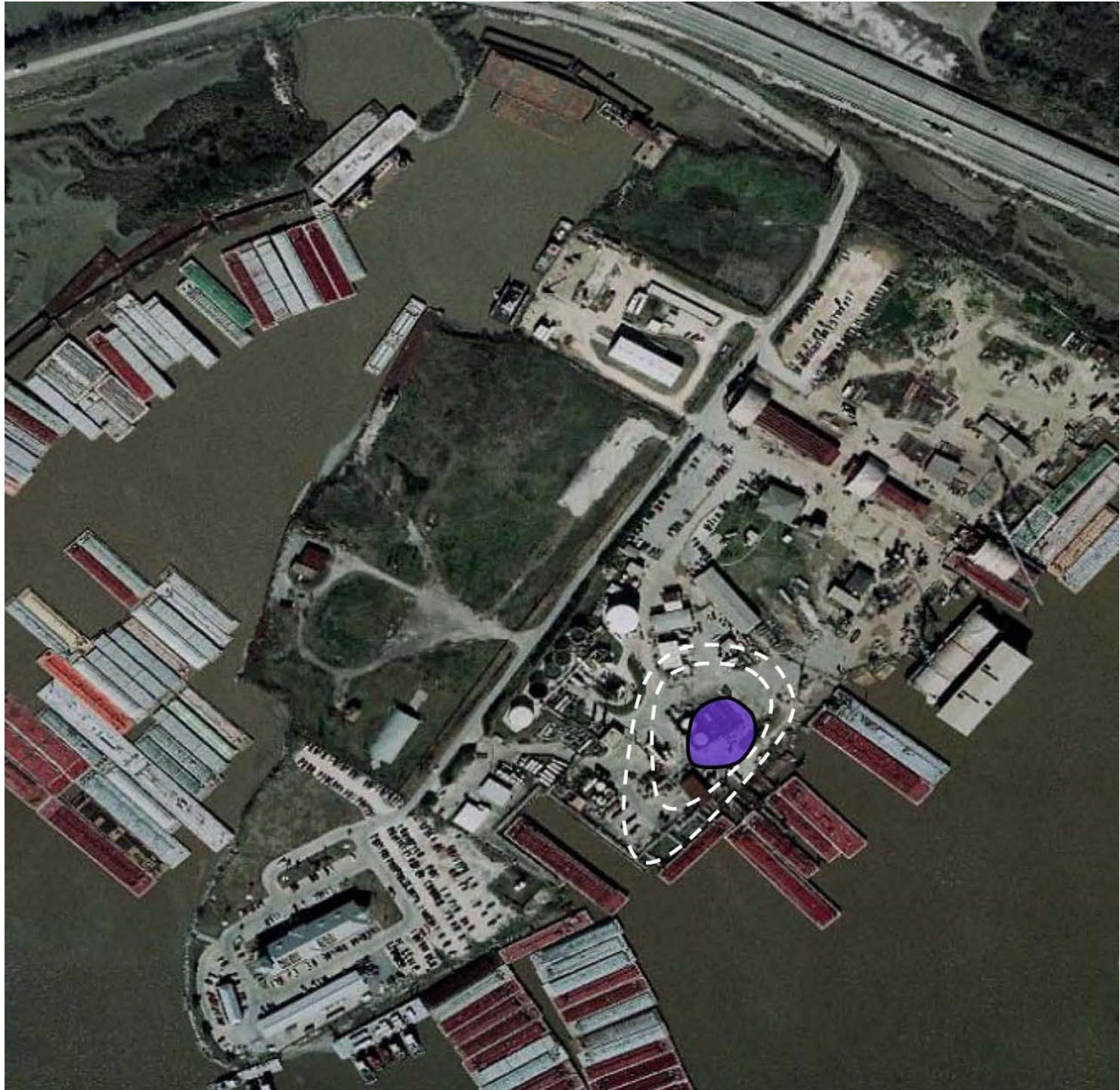














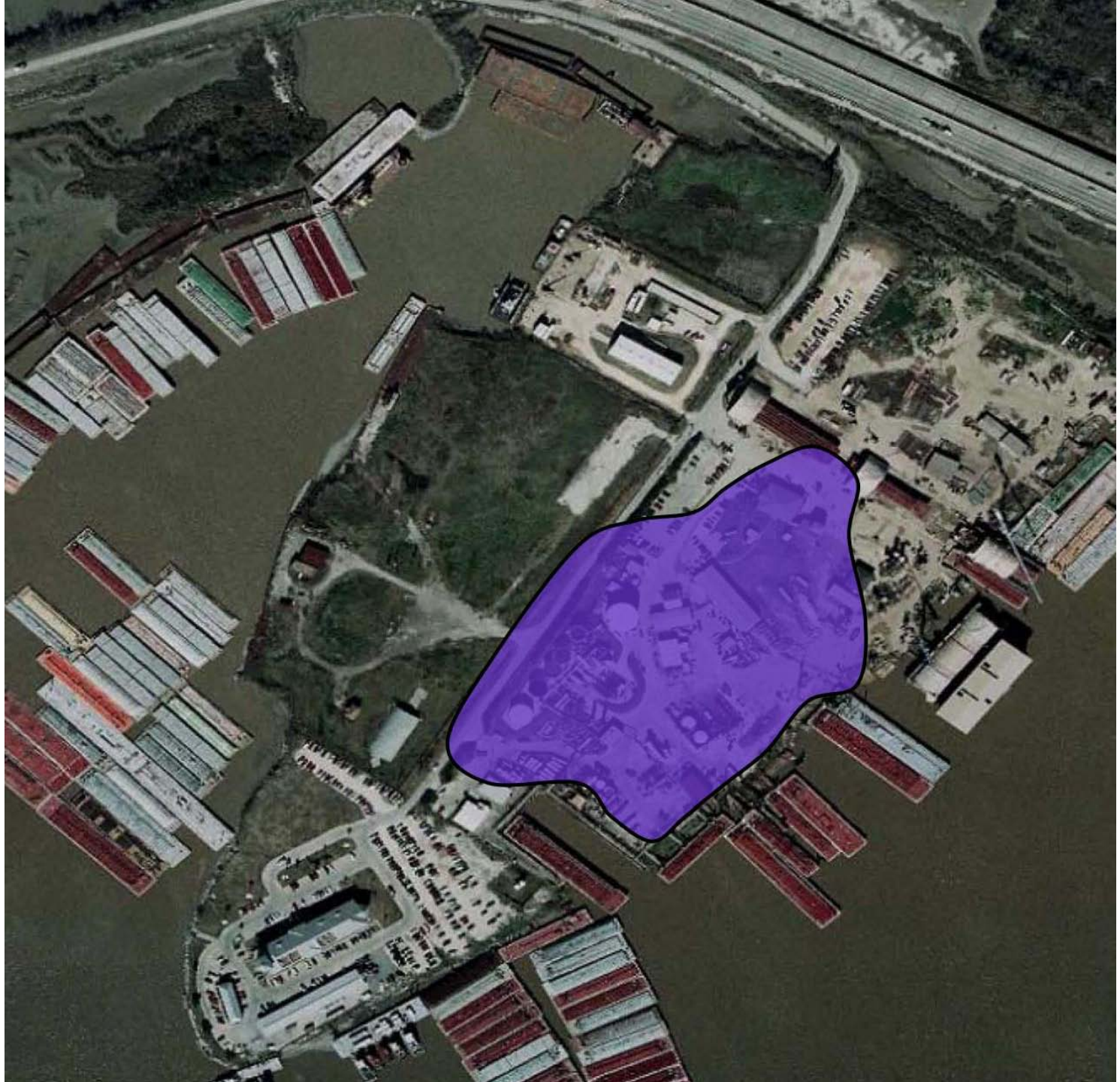


# Chemicals of Concern

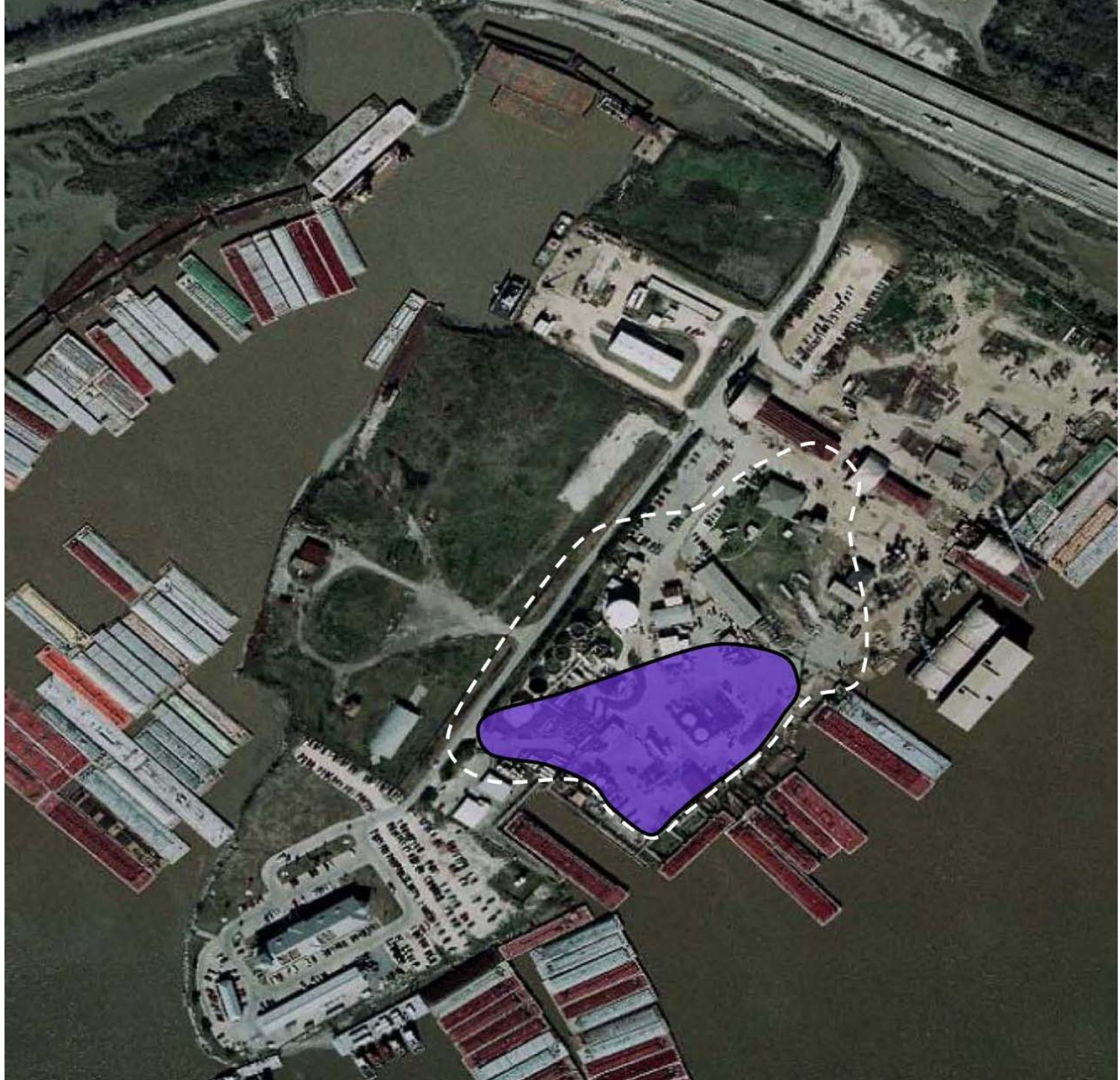
COC	Standard without MSD	Standard with MSD	Max Conc.
Benzene	0.005	300	14.6
Chloroform	0.73	33	1.1
1,2-Dichloroethane	0.005	55	18.5
1,1-Dichloroethene	0.007	2,300	0.194
Cis-1,2-Dichloroethene	0.07	23,000	98.3
Trans-1,2-Dichloroethene	0.1	1,100	0.336
Ethyl benzene	0.7	22,000	2.23
Tetrachloroethene	0.005	840	24
Toluene	1	89,000	1.55
Trichloroethene	0.005	170	21
Vinyl chloride	0.002	6.4	147
Benzo(a)anthracene	0.0013	3,400	0.074
Benzo(a)pyrene	0.0002	650	0.071
Benzo(b)fluoranthene	0.0013	2,700	0.0485
Benzo(k)fluoranthene	0.013	160,000	0.0463
Bis(2-ethylhexyl)phthalate	0.006	--	0.0641
Dibenzofuran	0.098	--	0.167
2,4-Dimethylphenol	0.49	230,000	1.62
Indeno(1,2,3-c,d)pyrene	0.0013	16,000	0.0857
4-Methylphenol	0.37	170,000	1.22
1,2-Dichloropropane	0.005	16	0.132
Naphthalene	0.49	440	8.28

- COCs Above Standard
- Maximum Concentration from 2007 to 2010
- Standard with/without MSD
- Additional Remediation to Perform **With** MSD

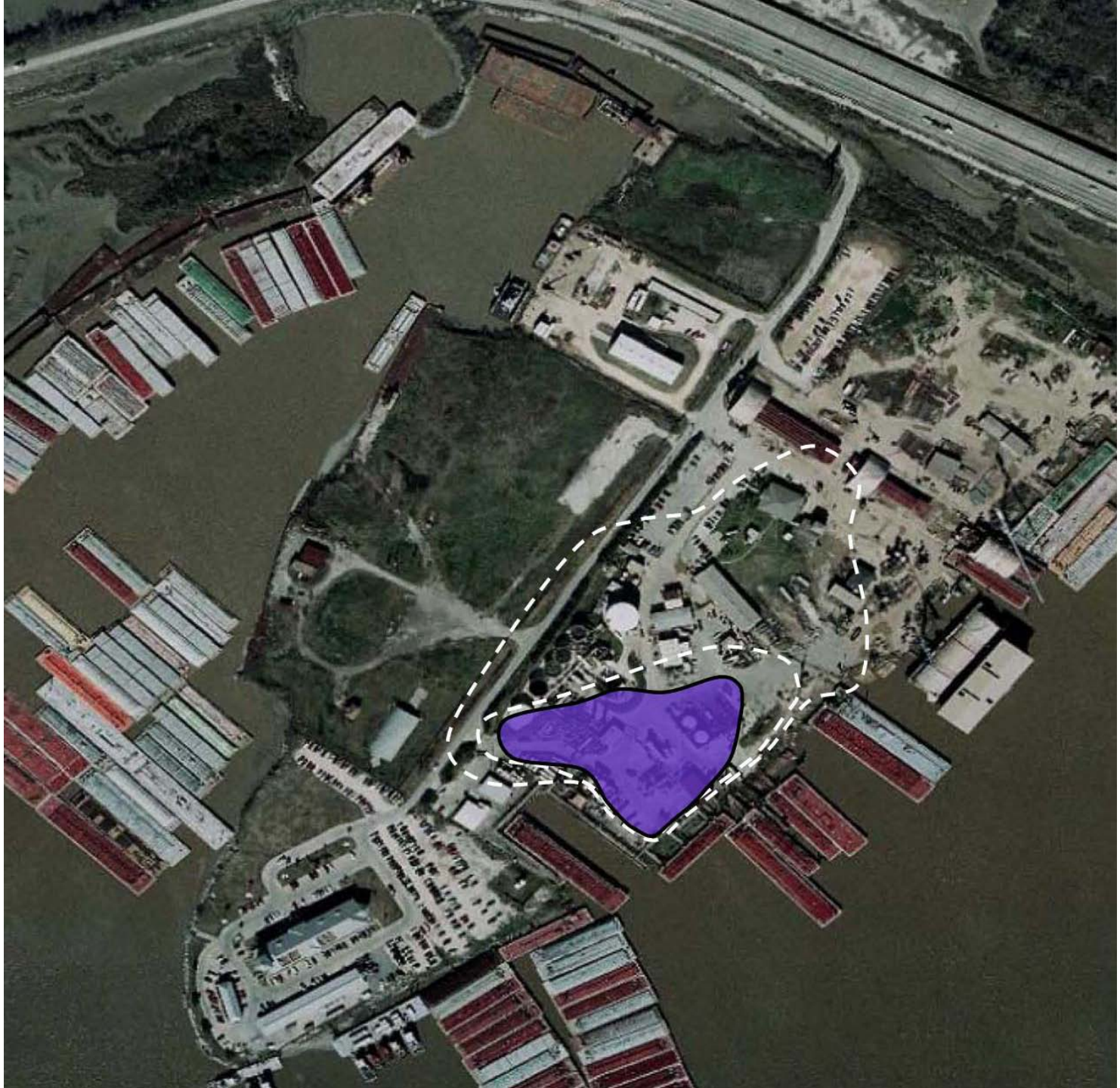




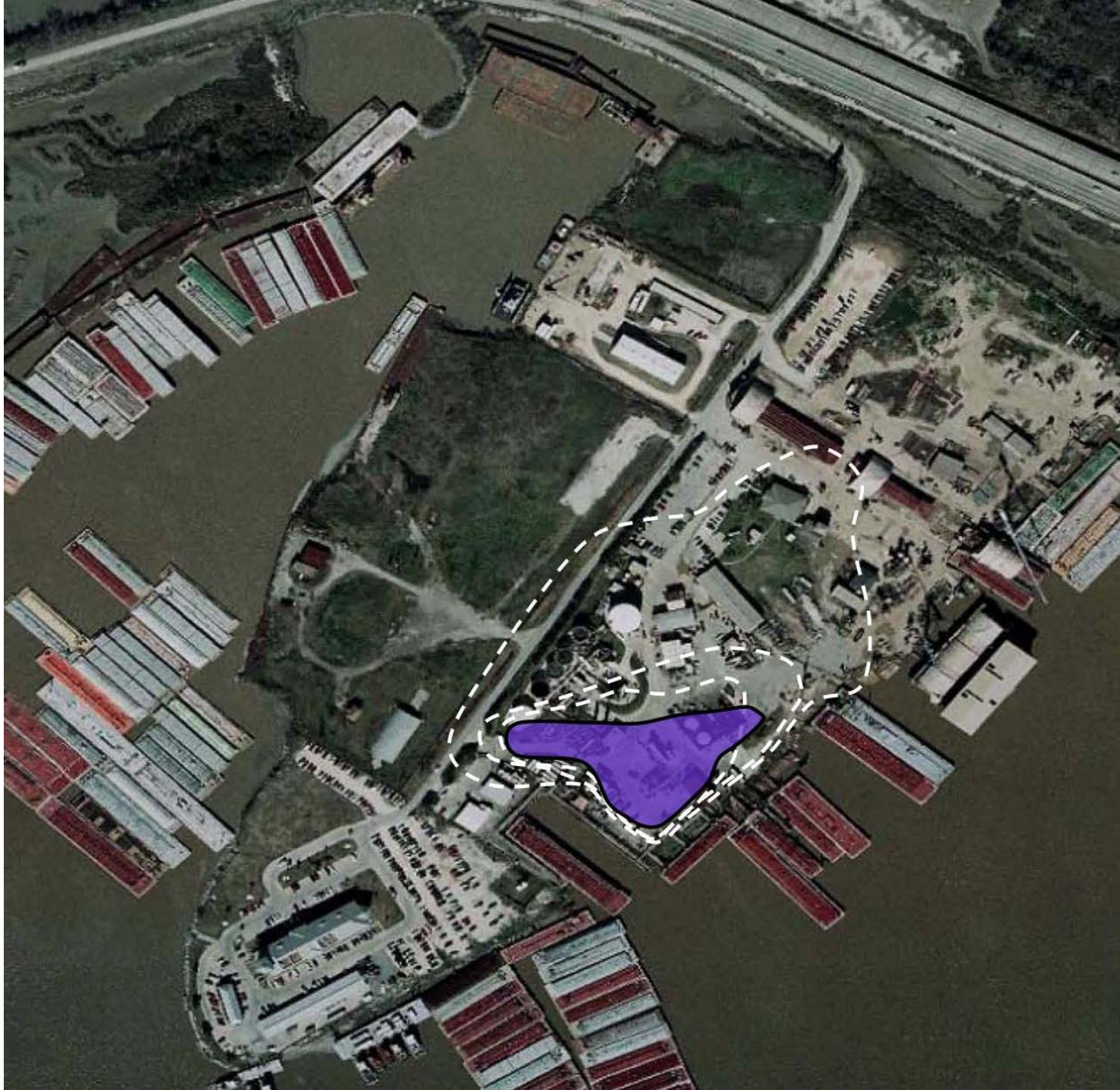




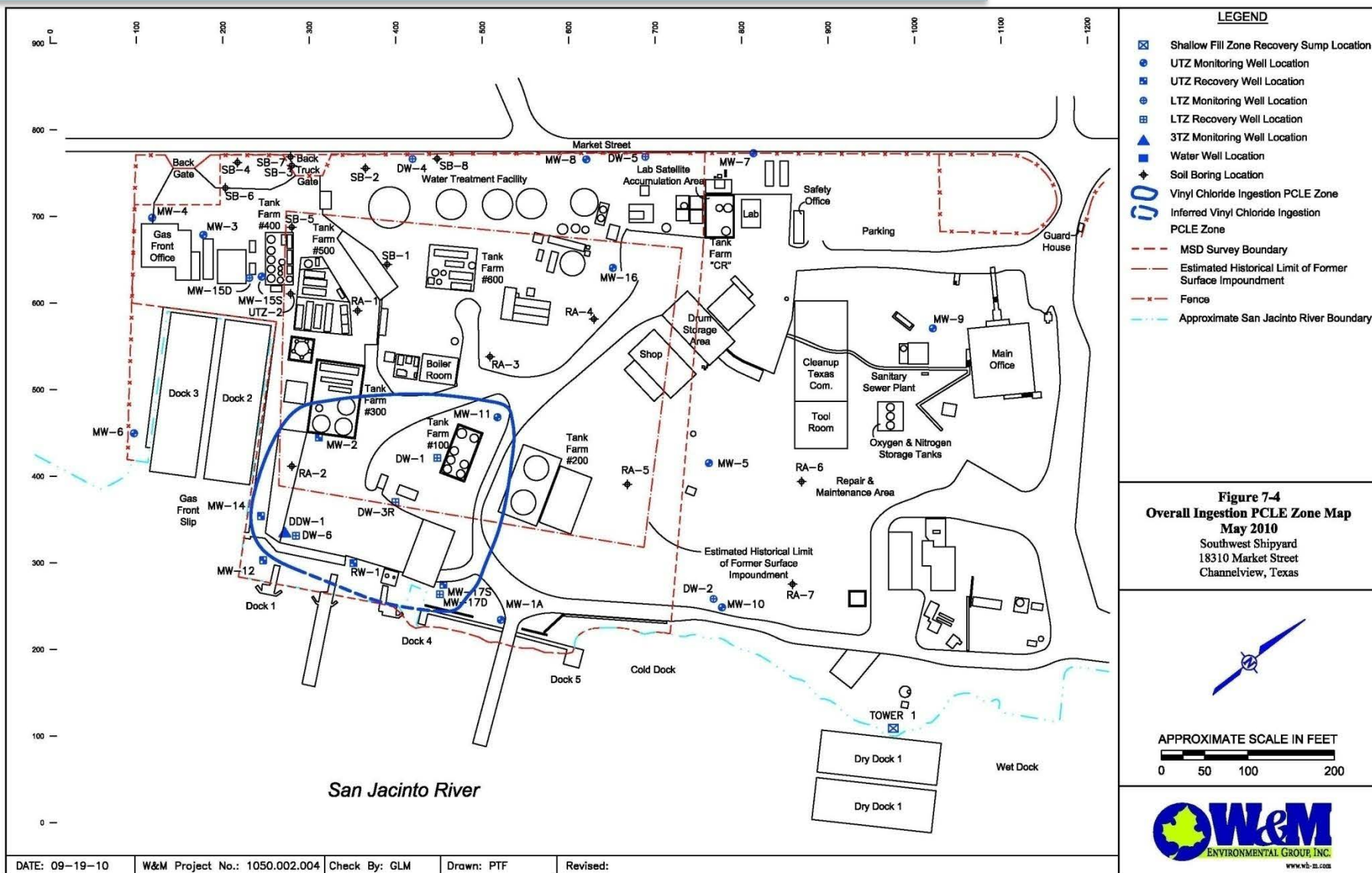






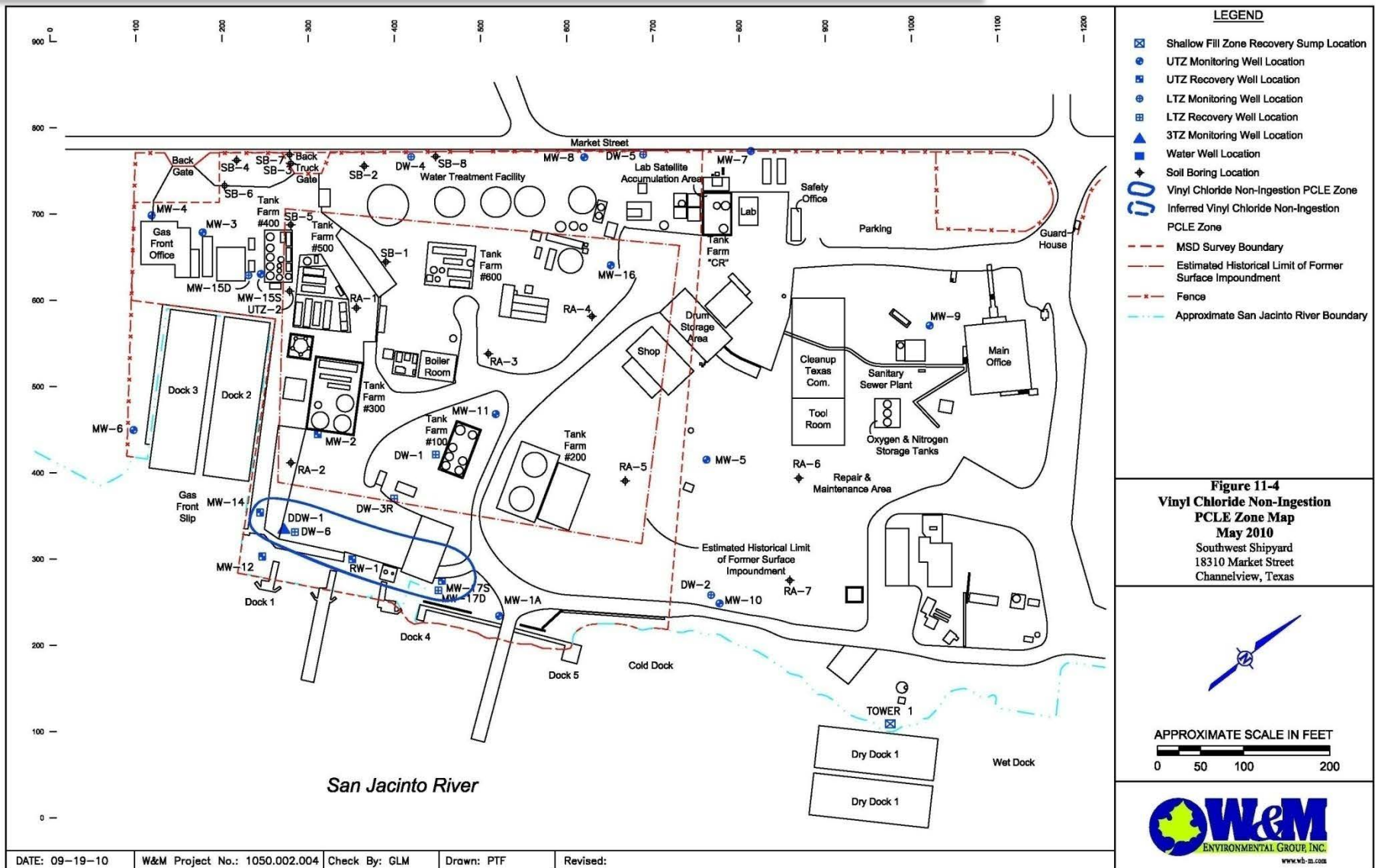


# Overall Ingestion PCLE





# Vinyl Chloride Non-Ingestion PCLE



# Summary

- Old Shrinking Groundwater Plume
- No Impacted Groundwater Migrating into San Jacinto River
- No Vapor Impacts Identified – Cap in Place
- Response Actions **will be** Required for Groundwater **with** MSD
- Site is in the Corrective Action Program
- **No** Affected or Potentially Affected Water Wells
- Water for the Site and much of Surrounding is from the Chicot Aquifer - Chicot Aquifer is Not Affected
- City of Houston or Baytown is Capable of Providing Drinking Water

